

Seun Oladipupo

Molecular Biophysics and Biochemistry, Yale University, CT
seun.oladipupo@yale.edu; www.linkedin.com/in/seunoladipupo
website: seunoladipupo.com

June 2023

EDUCATION

Doctor of Philosophy | 2022

Auburn University | Auburn, AL, United States
Entomology | GPA 4.00/4.00

Master of Technology | 2017

Federal University of Technology, Akure | Akure, Ondo, Nigeria
Environmental Biology and Public Health | GPA 4.63/5.00

Bachelor of Technology | 2012

Federal University of Technology, Akure | Akure, Ondo, Nigeria
Biology | GPA 4.22/5.00

WORK/RESEARCH EXPERIENCE

Postdoctoral Research Associate, Department of Molecular Biophysics and Biochemistry | Aug 2022–Present

Yale University | New Haven, CT, United States

- Elucidate the molecular mechanism of the *Wolbachia*-mediated CI nuclease pathway, Cin
- Investigate the candidate substrates of CinA and CinB in *Drosophila*
- Describe the localization patterns of CinA and CinB in sperm and egg
- Uncouple how CinA reverses the lethality of CinB in vitro

Research Fellow, Department of Entomology | June 2022–July 2022

Auburn University | Auburn, AL, United States

- Describe the molecular mechanism of *Wolbachia*-mediate cytoplasmic incompatibility in mosquitoes
- Investigate the molecular targets of *Wolbachia* deubiquitylating enzyme, CidB, and its cognate partner, CidA, in mosquitoes and yeast

Graduate Research Assistant, Entomology | Aug 2018–May 2022

Auburn University | Auburn, AL, United States

- Characterized the toxicity profiles of susceptible and insecticide-resistant German cockroaches to essential oils
- Described the effects of essential oils on the metabolic and respiratory physiology of German cockroaches using respirometry and electrophysiological techniques
- Measured electroantennogram responses of German cockroaches to selected essential oils
- Cloned *Wolbachia* genes in cockroaches and phylogenetically conducting multi-locus sequence typing of *Wolbachia* strains
- Investigated the toxicity of *Orientia tsutsugamushi* CinB toxin on *Saccharomyces cerevisiae* and *Drosophila melanogaster* reproductive phenotype

Techniques and Expertise: Toxicity bioassays, respirometry, electrophysiology, electroantennography, Insect transgenesis, PCR, RT-qPCR, molecular cloning, yeast transformation, recombinant protein expression, protein purification, chromatography, gel electrophoresis, SDS-PAGE, western blotting, antibody purification, tandem mass spectrometry, EthoVision, ExpeData, statistical programming (R, SigmaPlot, SPSS, and GraphPad), proteomics analysis, bioinformatics tools and databases (MEGAX, GeneStudio, OligoCalc), and scientific illustration (Adobe Photoshop and Illustrator), *Escherichia coli*, yeast, *Drosophila melanogaster*, *Anopheles gambiae*, *Aedes aegypti*, *Blattella germanica*

Graduate Research Assistant, Environmental Biology & Public Health | Aug 2015–May 2017

Federal University of Technology, Akure | Akure, Ondo, Nigeria

- Monitored and investigated the susceptibility of *Anopheles gambiae* Giles to insecticide and essential oils
- Investigated the effect of essential oils on the biology of *Tribolium castaneum* and *Callosobruchus maculatus*

Techniques and Expertise: Toxicity bioassays, integrated pest management, statistical programming (SPSS)

RESEARCH GRANTS

Hanna Gray Fellows Post-doctoral Grant (\$310,000) *

Title: Investigating the functional mechanism of *Wolbachia*-mediated male-killing

Role: **PI: Seun Oladipupo**

Funding Source: Howard Hughes Medical Institute, MD, USA

Year: 2022

Black in Ento Research Award (\$1000)

Title: Prevalence and multi-locus sequence typing of the *Wolbachia* endosymbiont in three cockroach families: implication for urban entomology

Role: **PI: Seun Oladipupo**

Funding Source: Research Fund by BASF Agro, Corteva, EntSocAmerica, and CanEntomologist, USA

Year: 2021

Pest Management Foundation Scholarship Research Award (\$2000)

Title: Toxicity and physiological effects of essential oils against the German cockroach

Role: **PI: Seun Oladipupo**

Funding Source: National Pest Management Association, VA, USA

Year: 2021

*grant not awarded

PROFESSIONAL ASSOCIATIONS

- Genetics Society of America
- Entomological Society of America
- Entomologists of Color
- Yale Black Postdoctoral Association

HONORS & AWARDS

Research Award (\$10000), Gordon and Betty Moore Foundation to attend the Summer School on Molecular and Cell Biology of Symbiosis at The Marine Biological Laboratory, Capecod, MA, USA, 2023

Outstanding Service Award, African Students' Association, Auburn University, Auburn, AL, USA, 2022

Runners-up Medal, Entomology Games, Entomological Society of America Annual Meeting, Vancouver, Canada, 2022

Presidential Membership Initiative Award, Genetics Society of America, Rockville, MD, USA, 2021

Young Scientist Scholarship Award (\$3000), Vetoquinol and French Society of Parasitology to attend Entomology Summer School organized by the National Veterinary School of Toulouse, France, 2021

Runners-up Medal, EntoOlympics, Royal Entomological Society, Virtual Online Meeting, UK, 2021

Outstanding Service Award, Graduate Student Council, Auburn University, Auburn, AL, USA, 2021

International Student Recognition Award, Auburn University, Auburn, AL, USA, 2021

Champion Medal, Entomology Games, Southeastern Branch Entomological Society of America Annual Meeting, Virtual Online Meeting, USA, 2021

Travel Award (\$300), National Conference on Urban Entomology & Invasive Pest Ant Conference, Mobile, AL, 2021

National Champion Medal, Entomology Games, Entomological Society of America Annual Meeting, Virtual Online Meeting, USA, 2020

Runners-up Medal, Entomology Games, Southeastern Branch Entomological Society of America Annual Meeting, Virtual Online Meeting, USA, 2020

Outstanding Graduate Student Award, Entomology and Plant Pathology Department, Auburn University, Auburn, AL, USA, 2020

EntoPOC Fund Award for complimentary membership (2020-2021) with Entomological Society of America, Entomology People of Color, USA, 2020

First-Year Experience Mentor Award, Graduate Student Council, Auburn University, Auburn, AL, USA, 2020

F.E. Guyton Travel Award (\$500), Entomology and Plant Pathology Department, Auburn University, Auburn, AL, USA, 2020

Travel Fellowship Award (\$300), Auburn University's Graduate Student Council, Auburn, AL, USA, 2019

Internship Award (\$2,500), National Pest Management Association, Fairfax, VA, USA, 2019

F.E. Guyton Travel Award (\$500), Entomology and Plant Pathology Department, Auburn University, Auburn, AL, USA, 2019

Distinction, Master's degree in Environmental Biology and Public Health from the Federal University of Technology, Akure, Nigeria, 2017

Bursary Scholarship, Ekiti Parapo Association of New York bursary scholarship, Ikere, Nigeria, 2016

Bursary Award, Association of Commonwealth Universities to attend the Summer School on *Sustainable Development Goals: What role for Universities* at the University of Rwanda Campus, Kigali, Rwanda, 2016

Prof. Henry Fadamiro Award for the Best Graduating Student in Applied Vector and Pest Management in the Department of Biology, Federal University of Technology, Akure, Nigeria, 2012

PUBLICATIONS

Oladipupo, S.O., Laidoudi, Y., Beckmann, J.F., Hu, X.P., Appel, A.G., 2023. The prevalence of *Wolbachia* in multiple cockroach species and its implication for urban insect management. *J. Econ. Entomol.* xx, 1–10.

*featured in *Entomology Today* at this link: <https://entomologytoday.org/2023/06/15/wolbachia-cockroaches-new-paradigm-urban-pest-management/>

Oladipupo, S.O., Carroll, J.D., Beckmann, J.F., 2023. Convergent *Aedes* and *Drosophila* CidB interactomes suggest cytoplasmic incompatibility targets are conserved. *Insect Biochem. Mol. Bio.* 155, 1–8

Oladipupo, S.O., Hu, X.P., Appel, A.G., 2022. Essential Oils in Urban Insect Management – a review. *J. Econ. Entomol.* 115, 1375–1408. *featured in *Entomology Today* at this link:

<https://entomologytoday.org/2022/07/14/essential-oils-untapped-resource-managing-urban-insect-pests/>

Eckert, J.P., **Oladipupo, S.O.**, Wang, Y., Jiang, S., Patil, V.V., McKenzie, B., Lobo, N., Zohdy, S. 2022. Which trap is best? Alternatives to human landing catches for malaria vector surveillance: a meta-analysis. *Malar. J.* 21, 378

Oladipupo, S.O., Wilson, A.E., Hu, X.P., Appel, A.G., 2022. Why do insects close their spiracles? A meta-analytic evaluation of the hypotheses of discontinuous gas exchange in insects. *Insects.* 13, 117–121

DadeMatthews, O., Agostinelli, P., Neal, F., **Oladipupo, S.O.**, Hirschhorn, R., Wilson, A., Sefton, J. 2022. Systematic review and meta-analyses on the effects of whole-body vibration on bone health. *Complimentary Ther. Med.* 65, 1–15

Beckmann, J.F., Dormitorio, T.V., **Oladipupo, S.O.**, Bethonico-Terra, B., Macklin, K.S., Hauck, M.R., 2021. *Heterakis gallinarum* and *Histomonas meleagridis* DNA persists in chicken houses years after depopulation. *Vet. Parasitol.* 109536

Gbaye, O.A., **Oladipupo, S.O.**, Oyeniyi, E.A., Oladipupo, T.H., 2021. Impact of sublethal doses of *Piper guineense* on the biological parameters of *Callosobruchus maculatus* (F.) (Coleoptera: Chrysomelidae) reared on different cowpea varieties. *J. Asia Pac. Entomol.* 24, 529–535

Oladipupo, S.O., Hu, X.P., Appel, A.G., 2020. Essential oil components in superabsorbent polymer gel modify reproduction of *Blattella germanica* (L.) (Blattodea: Ectobiidae). *J. Econ. Entomol.* 113, 2436–2447

Oladipupo, S.O., Hu, X.P., Appel, A.G., 2020. Topical toxicity of some selected aliphatic and aromatic essential oil components against the German cockroach (Blattodea: Ectobiidae). *J. Econ. Entomol.* 113, 896–904

Oladipupo, S.O., Callaghan A., Holloway, G.J., Gbaye, O.A., 2019. Variation in the susceptibility of *Anopheles gambiae* to botanicals across a metropolitan region of Nigeria. *PLoS ONE.* 14, e0210440

*Ajayi, O.E., **Oladipupo, S.O.**, Ajisafe, O., 2019. Influence of processing and substrate variety on survival and development of *Tribolium confusum* (Coleoptera: Tenebrionidae). *Arch. Phyto. Plant Prot.* 52, 356–370

Oladipupo, S.O., Adedire, C.O., Gbaye, O.A., 2018. Fecundity and survival of *Carpophilus hemipterus* (Linnaeus, 1758) (Coleoptera: Nitidulidae) on alternative hosts. *Braz. J. Biol. Sci.* 5, 115–123

*Ajayi, O.E., **Oladipupo, S.O.**, Ojo, T.B., 2018. The fumigant toxicity of *Syzygium aromaticum* and *Cymbopogon citratus* oils on selected life stages of *Tribolium castaneum* (Coleoptera: Tenebrionidae). *J. J. Bio. Sci.* 11, 571–575

Ajayi, O.E., **Oladipupo, S.O.**, Jegede, O.J., 2018. Comparative and synergistic influence of extracts of two tropical plants on the activity of the cowpea weevil, *Callosobruchus chinensis*. *Med. Plant Res.* 8, 60–73

Owoeye, J.A., Akinneye J.O., **Oladipupo, S.O.**, Akawa, O.A., Akinkurolere, R.O., 2016. Toxicity of three tropical plants to mosquito larvae, pupae, and adults. *Int. J. Mosq. Res.* 6, 1–7

* indicates publication by a student mentee

CONFERENCE PRESENTATIONS

Oladipupo, S.O., Beckmann, J.F., Hu, X.P. and Appel, A.G. 2022. Endosymbiont research as a cross-continental tool for urban insect management. Symposium Presentation at Southeastern Branch Entomological Society of America Meeting, Peurto Rico, 26–30 March 2022

Oladipupo, S.O., Hu, X.P. and Appel, A.G. 2021. Effects of essential oil components on the respiratory physiology of insecticide-susceptible and multi-resistant strains of *Blattella germanica* (L.) (Blattodea: Ectobiidae). Student Oral Presentation at Southeastern Branch Entomological Society of America Virtual Meeting, 29–31 March 2021

Oladipupo, S.O., Hu, X.P. and Appel, A.G. 2021. Essential oil components in superabsorbent polymer gel modify reproduction of *Blattella germanica* (L.) (Blattodea: Ectobiidae). Student Poster Presentation at Auburn Research Symposium, Auburn, AL, 29–31 March 2021

Hauck, M.R., Beckmann, J.F., **Oladipupo, S.O.**, Dormitorio, T.V., Macklin, K.S., Bethonico-Terra, M.T. Detection of *Heterakis gallinarum* and *Histomonas meleagridis* DNA in Darkling beetles and litter after depopulation of chicken houses. Oral Presentation at Western Poultry Disease Conference, America Association of Avian Pathologists, Virtual Online Meeting, 15–17 March 2021

Oladipupo, S.O., Hu, X.P. and Appel, A.G. 2020. Essential oil components in superabsorbent polymer gel modify reproduction of *Blattella germanica* (L.) (Blattodea: Ectobiidae). Student Poster Presentation at Entomological Society of America Annual Meeting, Virtual Online Meeting, 11–25 November 2020

Oladipupo, S.O., Hu, X.P. and Appel, A.G. 2019. Topical toxicity of some selected aliphatic and aromatic essential oil components against the German cockroach (Blattodea: Ectobiidae). Student Oral Presentation at Entomological Society of America Annual Meeting, St. Louis, MS, 17–20 November 2019

Oladipupo, S.O., Hu, X.P. and Appel, A.G. 2019. Toxicity of some selected aliphatic and aromatic essential oil components against the German cockroach (Blattodea: Ectobiidae). Student Oral Presentation at Entomological Society of America SEB Annual Meeting, Mobile, AL, 4–8 March 2019

Oladipupo, S.O., Hu, X. P. and Appel, A.G. 2019. Toxicity of some selected aliphatic and aromatic essential oil components against the German cockroach (Blattodea: Ectobiidae). Student Oral Presentation at the College of Agriculture Graduate Student Poster Competition, Auburn, AL, 23 October 2019

Oladipupo, S.O., Hu, X.P. and Appel, A.G. 2019. Using essential oils in the management of indoor cockroaches. NPMA Intern Oral Presentation at PestWorld 2019, San Diego, CA, 15–18 October 2019

TEACHING EXPERIENCE

Teaching Assistant | 2019–2021

Auburn University | Auburn, AL, United States

General Entomology | Fall 2021

- Coordinated lab sessions and student insect collections
- Developed, administered, and graded tests for 33 undergraduate students

General Entomology | Fall 2019

- Coordinated lab sessions and student insect collections
- Developed, administered, and graded tests for 38 undergraduate students

Analysis for Wildlife Sciences | Spring 2019

- Demonstrated generalized linear models for 45 undergraduate students in R
- Coordinated lab studio sessions for 45 undergraduate students

Teaching Assistant | 2015–2016

Federal University of Technology, Akure | Akure, Ondo, Nigeria

General Biology | Fall 2015–Fall 2016

- Coordinated introductory biology lab sessions for 310 students in four departments
- Developed, administered, and graded tests for 310 students

Biological Techniques | Fall 2015–Fall 2016

- Introduced students to microscopy and electrophoretic techniques
- Organized, supervised, and graded tests

SPECIAL TRAINING

Proteomics data analysis in R for intermediate users. Bioinformatics Support Hub, Cushing/Whitney Medical Library, Yale School of Medicine, New Haven, CT, 9 November 2022

Diversity, Equity & Inclusion level 1. Bentley's Executive Program, Bentley University, 14 October–18 November 2022

Leadership and management in action program. Office for Postdoctoral Affairs, Yale University, New Haven, CT, 14 October–17 November 2022

LEADERSHIP & PROFESSIONAL SERVICE

Team Captain, Entomology Games Team, Auburn University, Auburn, AL, USA, September 2018–November 2022

Team Captain, Entomology Debate Team, Auburn University, Auburn, AL, USA, June 2021– November 2022

President, F.S. Arant Entomology and Plant Pathology Club, Auburn University, Auburn, AL, USA, May 2020–April 2021

Treasurer, Graduate Student Council, Auburn University, Auburn, AL, USA, May 2020–April 2021

Chairperson, Budget and Finance Committee, Graduate Student Council, Auburn University, Auburn, AL, USA, May 2020–April 2021

Graduate Student Representative, Senate Committee on Teaching Effectiveness, Auburn University, Auburn, AL, USA, May 2020–April 2021

Member, Departmental Award for Excellence in Education Revision Working Group, Auburn University, Auburn, AL, USA, Feb–March 2021

Treasurer, F.S. Arant Entomology and Plant Pathology Club, Auburn University, Auburn, AL, USA, May 2019–April 2020

Member, Abstract Review Committee, Auburn Research Student Symposium, Auburn University, Auburn, AL, USA, June 2020

Member, Local Organizing Committee, School of Science 16th Annual Conference, Federal University of Technology, Akure, Nigeria, 12–16 September 2016

Member, Local Organizing Committee, 44th Parasitology and Public Health Society of Nigeria, Federal University of Technology, Akure, Nigeria, 10–15 May 2015

EXTENSION & OUTREACH ACTIVITIES

Instructor, Insect Structure and Function lecture-demonstration to K-12 graders at E.A.G.L.E. summer camp, Auburn, AL, June 2021

Online Instructor, The Basics of Bugs TV, Entomology and Plant Pathology Club, Auburn University, Auburn, AL, April 2020–May 2022

Outreach Instructor, Auburn 5th grade student visit at Auburn City library (showed stick insect, Madagascar hissing cockroach, and millipede), Auburn, AL, 20 February 2020

Outreach Instructor, Halloween-themed lecture: “Creepy, Crawly Bugs”, Auburn Public Library (introduced entomology, stick insect, Madagascar hissing cockroach, and millipede), Auburn, AL, 8 October 2019

Assistant Instructor, Outreach and Education wing of the Auburn University Museum of Natural History (AUMNH), Auburn, AL, USA, 12–14 September 2018

OTHER VOLUNTEERING

Symposium co-organizer, Global entomology research and the potential for cross-continental collaboration, Joint Southeastern Branch and American Phytopathological Society Meeting, Peurto Rico, USA, 2022 (Co-organizer: Dr. Michelle Samuel-Foo)

Symposium co-organizer, Multisystem and Novel Approaches to Insect Pest Management, Entomological Society of America Annual Meeting Denver, USA, 2021 (Co-organizer: Oluwaseun Ajayi)

Moderator, Addressing the Wicked Problem of Pesticide Resistance and Pest Management. Symposium at Entomological Society of America Annual Meeting, Virtual Annual Meeting, USA, 16 November 2020

Mentor, First-Year Experience Program, Auburn University, Auburn, AL, USA, August 2019–July 2020

Judge, The Queen’s Commonwealth Essay Competition organized by The Royal Commonwealth Society, UK, June 2017–June 2019

Volunteer, The BIG Event, Auburn University, Auburn, AL, March 2019–February 2020

REVIEWER FOR THE FOLLOWING JOURNALS

- Journal of Economic Entomology
- European Journal of Entomology
- Journal of the Entomological Research Society
- PLoS One
- Int. Journal of Tropical Insect Science